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V.B. Melas • Stefania Mignani
Paola Monari • Luigi Salmaso
Editors

Topics in Statistical Simulation

Research Papers from the 7th International
Workshop on Statistical Simulation

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Preface

This volume contains selected and peer-reviewed papers presented during the 7th International Workshop on Simulation, held in Rimini, May 21–25, 2013. This international conference is devoted to statistical techniques in stochastic simulation, data collection and analysis of scientific experiments and studies representing broad areas of interest. Since 1994, all the previous workshops took place in St.Petersburg (Russia). In 2013, for the first time, the conference took place in the Rimini Campus of the University of Bologna, in Rimini (Italy). The 7th International Workshop on Simulation was sponsored by the Unit of Rimini of the Department of Statistical Sciences of the University of Bologna in collaboration with the Department of Management and Engineering of the University of Padova, the Department of Statistical Modelling of Saint Petersburg State University and INFORMS Simulation Society. The scientific program of the meeting included 186 papers presented by a large number of scientists and experts from several countries and scientific institutes. The scientific contributions were related to several topics related, among the others, to the following issues: new methodologies for clinical trials for small population groups, modelling techniques in biostatistics and reliability, optimal fixed and random experimental sizes, experimental designs constructed by computers, simulation-based optimal design, design in computer and simulation experiments, mixture of distributions for longitudinal data, randomization, asymptotic permutation tests in heteroscedastic designs, inference for response-adaptive design, response adaptive randomization, optimal design and simulations in experimental design, queueing systems modelling, stochastic modelling in various applications, random walks and branching processes, ordered random variables and related topics, nonstandard statistical models and their application, special simulation problems, sequential nonparametric methods, Monte Carlo methods for nonlinear kinetics equations, Monte Carlo methods for vector kinetics equations, Monte Carlo methods in optical probing, numerical simulation of random fields with applications, structural change detection and analysis of complex data, simulations and computations for parametric goodness-of-fit tests in reliability and survival analysis, stochastic modelling in clinical trials, design of experiments and computing, developments in design of experiments, spatial

minimax and discrimination designs, complexity in statistical modelling, simulation based Bayesian estimation of latent variable models, advances in estimation of complex latent variable models, copula methods and complex dependence, computer intensive methods and simulations for the analysis of longitudinal data, topics in multilevel models, simulation issues for modelling ordinal data, simulation tools and methods in hospital management, design of experiments: algebra, geometry and simulation, computer intensive techniques for time series analysis, some interesting and diverse applications. We wish to thank all the authors, the chair and the discussants of the sessions, the Department of Statistical Sciences of Bologna University, the Department of Management and Engineering of Padova University, the Department of Statistical Modelling of Saint Petersburg State University, the INFORMS Simulation Society and the Italia Statistical Society, which scientifically sponsored the conference, and Comune di Rimini, Provincia di Rimini, Regione Emilia-Romagna, which sponsored the conference. We also wish to thank the Rimini Campus of the University of Bologna, for the hospitality, the Organizing Committee and the Scientific Committee and all the persons who contributed to the organization of the conference, in particular Stefano Bonnini (editorial assistant for this volume) and Mariagiulia Matteucci (for the organizing work made in Rimini).

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Contents

1	Queueing Systems with Unreliable Servers in a Random Environment	1
	Larisa Afanasyeva and Elena Bashtova	
2	Sequential Combining of Expert Information Using Mathematica ...	11
	Patrizia Agati, Luisa Stracqualursi, and Paola Monari	
3	Markov-Modulated Samples and Their Applications	29
	Alexander Andronov	
4	Simulating Correlated Ordinal and Discrete Variables with Assigned Marginal Distributions.....	37
	Alessandro Barbiero and Pier Alda Ferrari	
5	Probabilistic Counterparts for Strongly Coupled Parabolic Systems	47
	Ya. Belopolskaya	
6	Algorithms for Linear Stochastic Delay Differential Equations.....	57
	Harish S. Bhat	
7	Combined Tests for Comparing Mutabilities of Two Populations	67
	Stefano Bonnini	
8	Development of an Extensive Forensic Handwriting Database: Statistical Components	79
	Michèle Boulanger, Mark E. Johnson, and Thomas W. Vastrick	
9	Bayes Factors and Maximum Entropy Distribution with Application to Bayesian Tests	97
	Adriana Brogini and Giorgio Celant	

10	Monte Carlo Algorithm for Simulation of the Vehicular Traffic Flow Within the Kinetic Model with Velocity Dependent Thresholds	109
	Aleksandr Burmistrov and Mariya Korotchenko	
11	Importance Sampling for Multi-Constraints Rare Event Probability	119
	Virgile Caron	
12	Generating and Comparing Multivariate Ordinal Variables by Means of Permutation Tests	129
	Eleonora Carrozzo, Alessandro Barbiero, Luigi Salmaso, and Pier Alda Ferrari	
13	A Method for Selection of the Optimal Bandwidth Parameter for Beran's Nonparametric Estimator	139
	Victor Demin and Ekaterina Chimitova	
14	Simulating from a Family of Generalized Archimedean Copulas	149
	Fabrizio Durante	
15	PS-Algorithms and Stochastic Computations	157
	Sergej M. Ermakov	
16	Laws of Large Numbers for Random Variables with Arbitrarily Different and Finite Expectations Via Regression Method	167
	Silvano Fiorin	
17	<i>D</i>-optimal Saturated Designs: A Simulation Study	183
	Roberto Fontana, Fabio Rapallo, and Maria Piera Rogantin	
18	Nonparametric Testing of Saturated <i>D</i>-optimal Designs	191
	Roberto Fontana and Luigi Salmaso	
19	Timely Indices for Residential Construction Sector	199
	Attilio Gardini and Enrico Foscolo	
20	Measures of Dependence for Infinite Variance Distributions	209
	Bernard Garel	
21	Design of Experiments Using R	217
	Albrecht Gebhardt	
22	The Influence of the Dependency Structure in Combination-Based Multivariate Permutation Tests in Case of Ordered Categorical Responses	229
	Rosa Arboretti Giancristofaro, Eleonora Carrozzo, Iulia Cichi, Vasco Boatto, and Luigino Barisan	

23	Potential Advantages and Disadvantages of Stratification in Methods of Randomization	239
	Aenne Glass and Guenther Kundt	
24	Additive Level Outliers in Multivariate GARCH Models	247
	Aurea Grané, Helena Veiga, and Belén Martín-Barragán	
25	A Comparison of Efficient Permutation Tests for Unbalanced ANOVA in Two by Two Designs and Their Behavior Under Heteroscedasticity	257
	Sonja Hahn, Frank Konietzschke, and Luigi Salmaso	
26	Likelihood-Free Simulation-Based Optimal Design: An Introduction	271
	Markus Hainy, Werner G. Müller, and Helga Wagner	
27	Time Change Related to a Delayed Reflection	279
	B.P. Harlamov	
28	Et tu “Brute Force”? No! A Statistically Based Approach to Catastrophe Modeling	291
	Mark E. Johnson and Charles C. Watson Jr.	
29	Optimizing Local Estimates of the Monte Carlo Method for Problems of Laser Sensing of Scattering Media	299
	Evgeniya Kablukova and Boris Kargin	
30	Computer Experiment Designs via Particle Swarm Optimization	309
	Erin Leatherman, Angela Dean, and Thomas Santner	
31	Application of Nonparametric Goodness-of-Fit Tests for Composite Hypotheses in Case of Unknown Distributions of Statistics	319
	Boris Yu. Lemeshko, Alisa A. Gorbunova, Stanislav B. Lemeshko, and Andrey P. Rogozhnikov	
32	Simulating from the Copula that Generates the Maximal Probability for a Joint Default Under Given (Inhomogeneous) Marginals	333
	Jan-Frederik Mai and Matthias Scherer	
33	Optimization via Information Geometry	343
	Luigi Malagò and Giovanni Pistone	
34	Combined Nonparametric Tests for the Social Sciences	353
	Marco Marozzi	
35	The Use of the Scalar Monte Carlo Estimators for the Optimization of the Corresponding Vector Weight Algorithms	363
	Ilya Medvedev	

36	Additive Cost Modelling in Clinical Trial	373
	Guillaume Mijoule, Nathan Minois, Vladimir V. Anisimov, and Nicolas Savy	
37	Mathematical Problems of Statistical Simulation of the Polarized Radiation Transfer	383
	Gennady A. Mikhailov, Anna S. Korda, and Sergey A. Ukhinov	
38	Using a Generalized Δ^2-Distribution for Constructing Exact D-Optimal Designs	393
	Trifon I. Missov and Sergey M. Ermakov	
39	Sample Size in Approximate Sequential Designs Under Several Violations of Prerequisites	401
	Karl Moder	
40	Numerical Stochastic Models of Meteorological Processes and Fields	409
	Vasily Ogorodnikov, Nina Kargapolova, and Olga Sereseva	
41	Comparison of Resampling Techniques for the Non-causality Hypothesis	419
	Angeliki Papana, Catherine Kyrtsov, Dimitris Kugiumtzis, and Cees G.H. Diks	
42	A Review of Multilevel Modeling: Some Methodological Issues and Advances	431
	Giulia Roli and Paola Monari	
43	On a Generalization of the Modified Gravity Model	439
	Diana Santalova	
44	Bivariate Lorenz Curves Based on the Sarmanov–Lee Distribution ..	447
	José María Sarabia and Vanesa Jordá	
45	Models with Cross-Effect of Survival Functions in the Analysis of Patients with Multiple Myeloma	457
	Mariia Semenova, Ekaterina Chimitova, Oleg Rukavitsyn, and Alexander Bitukov	
46	Monte Carlo Method for Partial Differential Equations	465
	Alexander Sipin	
47	The Calculation of Effective Electro-Physical Parameters for a Multiscale Isotropic Medium	475
	Olga Soboleva and Ekaterina Kurochkina	
48	An Approximate Solution of the Travelling Salesman Problem Based on the Metropolis Simulation with Annealing	483
	Tatiana M. Tovstik	

49	The Supertrack Approach as a Classical Monte Carlo Scheme	493
	Egor Tsvetkov	
50	The Dependence of the Ergodicity on the Time Effect in the Repeated Measures ANOVA with Missing Data Based on the Unbiasedness Recovery	505
	Anna Ufliand and Nina Alexeyeva	
51	Mixture of Extended Linear Mixed-Effects Models for Clustering of Longitudinal Data	515
	ChangJiang Xu, Celia M.T. Greenwood, Vicky Tagalakakis, Martin G. Cole, Jane McCusker, and Antonio Ciampi	
52	The Study of the Laplace Transform of Marshall–Olkin Multivariate Exponential Distribution	531
	Igor V. Zolotukhin	

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